



Comparison of measured data and model-results during PEGASOS-campaign 2012

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In the Forschungszentrum Jülich a mobile Lab (MOBILAB) has been developed to perform mobile measurements with a high temporal resolution covering rural background regions and highly polluted urban areas. During the west campaign of the PEGASOS-project the MOBILAB was used as a mobile ground station and as a tool for mapping the concentrations in the rural background regions in the Netherlands.

As a part of the PEGASOS-project high resolution day by day forecasts have been calculated by EURAD. The forecast quality is based on the implementation of atmospheric chemistry and transport processes and the consistency of the emission inventories.

Values calculated in the EURAD-model represent average values for the corresponding 1x1 km grid-cells of the model. For comparison with the mobile ground-based measurements the lowest layer from the model has been used.

Based on the GPS-track recorded from MOBILAB the corresponding model-results were derived via a web interface provided by EURAD.

For the model-evaluation 80 hours of measurements were used. The dataset ranges from high concentrations in urban areas and on motorways to low concentrations in rural agricultural areas and a large forest.

As the MOBILAB has been measuring while driving along the roads, the effects of local emissions from single cars were eliminated from the data using a 5%-percentile filter with a 180 seconds time base.

The results indicate that the model can predict the concentrations for CO very well while the nitric oxides are significantly underestimated by a factor of two. As transport and mixing processes would affect all species in the same way, the results indicate that deviations of the emission inventories are the most probable explanation for the underestimation found for the nitric oxides.